CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

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Job No.: CTCE/BBMP/W.No.10/KRIDL/WMM/Gradation/2014-15

05.05.2014

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to roads and drains at Narayanappa Layout in Ward No.10, BBMP, Bangalore.

Reference : EE/BTP/KRIDL/W.O/473/2013-14 Dated: 21.02.2014

Date of Testing : 05.05.2014

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **8150**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	185	185	2.3	97.7	95-100
22.4	2650	2835	34.8	65.2	60-80
11.2	1465	4300	52.8	47.2	40-60
4.75	1280	5580	68.5	31.5	25-40
2.36	1010	6590	80.9	19.1	15-30
0.600	650	7240	88.8	11.2	8-22
0.075	610	7850	96.3	3.7	0-8

Note:

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05.05.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at Narayanappa Layout in Ward No.10, BBMP, Bangalore.
Reference	EE/BTP/KRIDL/W.O/473/2013-14 Dated: 21.02.2014
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	05.05.2014

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	378	380	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	78	79	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	301	
4	Aggregate Impact value = percent fines	20.63	20.79	
	100* (W_2/W_1)%			**20.71**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Work	Improvements to roads and drains at Narayanappa Layout in Ward No.10, BBMP, Bangalore.
Reference	EE/BTP/KRIDL/W.O/473/2013-14 Dated: 21.02.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	05.05.2014

Result : Flakiness Index = **12.35%**

Elongation Index = **13.85%**

Result : Combined Flakiness & Elongation index **26.20%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.10/KRIDL/QB/2014-15 20.05.2014

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

CLIENT	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	:	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	:	Improvements to roads and drains at Narayanappa Layout in Ward No.10, BBMP, Bangalore.
REFERENCE	:	EE/BTP/KRIDL/W.O/473/2013-14 Dated: 21.02.2014
SOURCE OF LOCATION	:	Hot mix Plant, Bangalore
DATE OF TESTING	:	20.05.2014

The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	86	80 to 100
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	44	Min. 40
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 75
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	302	Min. 220

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Job No.: CTCE/BBMP/W.No.10/KRIDL/SDBC/Bit/2014-15 26.05.2014

BITUMEN CONTENT DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AS per IRC:SP:-1984

CLIENT	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to roads and drains at Narayanappa Layout in Ward No.10, BBMP, Bangalore.
REFERENCE	EE/BTP/KRIDL/W.O/473/2013-14 Dated: 21.02.2014
SAMPLE I/D	Roads in Narayanappa Layout in Ward No.10, BBMP, Bangalore.
DATE OF TESTING	26.05.2014

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	26.00
7. Bitumen content in %	5.00	5.20
8. Average	**5.10**	

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BITUMEN CONTENT GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS2386 and IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to roads and drains at Narayanappa Layout in Ward No.10, BBMP, Bangalore.
REFERENCE	EE/BTP/KRIDL/W.O/473/2013-14 Dated: 21.02.2014
SAMPLE I/D	Roads in Narayanappa Layout in Ward No.10, BBMP, Bangalore.
DATE OF TESTING	26.05.2014

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	26.32	5.54	5.54	94.46	90-100
4.75	255.3	53.75	59.29	40.71	35-51
2.36	52.32	11.01	70.30	29.70	24-39
1.18	35.65	7.51	77.81	22.19	15-30
0.3	34.25	7.21	85.02	14.98	9-19
0.075	40.22	8.47	93.49	6.51	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	25.36	5.35	5.35	94.65	90-100
4.75	263.5	55.59	60.94	39.06	35-51
2.36	46.32	9.77	70.71	29.29	24-39
1.18	42.32	8.93	79.64	20.36	15-30
0.3	35.21	7.43	87.07	12.93	9-19
0.075	33.23	7.01	94.08	5.92	3-8

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